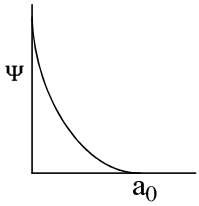
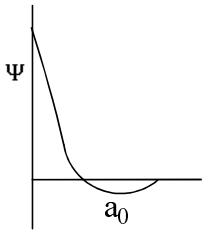
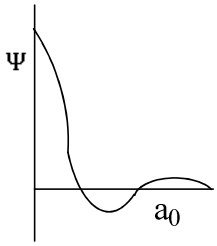
MERITSTORE

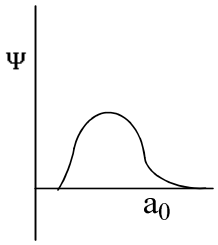
CHEMITSRY

46. An alkaloid contains 17.28% of nitrogen and it's molecular mass is 162. The number of nitrogen atoms present in one molecule of alkaloid is
    a) 5 b) 4 c) 3 d) 2
47. Haemoglobin contains 0.33% of iron by weight. The molecular weight of haemoglobin is approximately 67200. The number of iron atoms (at. Wt. of $Fe = 56$) present in one molecule of haemoglobin is
    a) 6 b) 1 c) 4 d) 2
48. The graph representing node is

a) 

b) 

c) 

d) 

49. The maximum energy is possessed by an electron, when it is present
    a) In nucleus
    b) In ground state
    c) In first excited state
    d) At infinite distance from the nucleus
50. Which of the following element is most electropositive?
    a) Al b) Mg c) P d) S
51. Which type of bond is present in H_2S molecule?
    a) Ionic bond
    b) Covalent bond
    c) Coordinate
    d) All of three
52. Which of the following is non – linear molecule?
    a) SO_3 b) CO_2 c) CS_2 d) $BeCl_2$
53. The rms velocity of molecules of a gas of density 4 kg m^{-3} and pressure $1.2 \times 10^5 Nm^{-2}$ is

a) $300\ ms^{-1}$ b) $900\ ms^{-1}$

c) $120\ ms^{-1}$ d) $600\ ms^{-1}$

54. If the value of C_p for nitrogen gas is $JK^{-1}mol^{-1}$, then the value of ΔH on heating 28 g of nitrogen gas from 0°C to 100°C at constant pressure will be

a) 1200 J b) 1300 J c) 1400 J d) 1500 J

55. If,

(i)$C + O_2 \rightarrow CO_2$

(ii)$C + \frac{1}{2}O_2 \rightarrow CO$

(iii)$CO + \frac{1}{2}O_2 \rightarrow CO_2$

The heat of reactions are $Q, -12, -10$ respectively. Then Q is

a) -2 b) 2 c) -22 d) -16

56. The solubility of AgI in NaI solution is less than that in pure water because

a) The temperature of the solution decreases

b) Solubility product of AgI is less than that of NaI

c) Of common ion effect

d) AgI forms complex with NaI

57. In which of the following reactions, hydrogen is acting as an oxidising agent?

a) With Li to form LiH b) With I_2 to give HI

c) With S to give H_2S d) None of the above

58. Which conversion is an oxidation?

a) $SO_4^{2-} \longrightarrow SO_3^{2-}$ b) $Cu^{2+} \longrightarrow Cu$

c) $H^+ \longrightarrow H$ d) $H^- \longrightarrow H$

59. The pH of a solution of H_2O_2 is 6.0. Some chloride gas is bubbled into this solution. Which of the following is correct?

a) The pH of resultant solution becomes 8.0

b) Hydrogen gas is liberated from resultant solution

c) The pH of resultant solution becomes less than 6.0 and oxygen gas is liberated

d) Cl_2O is formed in the resultant solution

60. Ionic compound $BaSO_4$ is insoluble in water due to

a) High lattice energy

b) Low lattice energy

c) Low hydration energy

d) Both (a) and (c)

61. Carborundum is

a) SiC b) $Al_2O_3.H_2O$

c) $Al_2(SO_4)_3$ d) $AlCl_3$

62. Moissan boron is

a) Amorphous boron of low purity
b) Crystalline boron of low purity
c) Amorphous boron ultra purity
d) Crystalline boron of ultra purity

63. Which of the following orders is correct regarding the $-I$ effect of the substituents?

a) $-NR_2 > -OR > -F$ b) $-NR_2 < -OR < -F$
c) $-NR_2 > -OR < -F$ d) $-NH_2 < -OR > -F$

64. In the series,

$$C_2H_5 \xrightarrow{NaNH_2} X \xrightarrow{CH_3I} Y \xrightarrow[H_2SO_4,H_2O]{HgSo_4} Z$$

The compound Z is

a) $CH_3CH_2CH = CH_2$ b) CH_3COCH_3
c) CH_3CHO d) $CH_3CH_2CH_2CHO$

65. The most stable alkene is,

a) $R_2C = CR_2$ b) $RCH = CHR$
c) $CH_2 = CH_2$ d) $RCH = CR_2$

66. Which of the following is a sink for CO?

a) Haemoglobin
b) Microorganisms present in the soil
c) Oceans
d) Plants

67. Which is not the correct statement for ionic solids in which positive and negative ions are held by strong electrostatic attractive forces?

a) The radius r^+/r^- increases as coordination number increases
b) As the difference in size of ions increases, coordination number increases
c) When coordination number is eight, the r^+/r^- ratio lies between 0.225 to 0.414
d) In ionic solid of the type AX(ZnS, Wurtzite), the coordination number of Zn^{2+} and S^{2-} respectively are 4 and 4

68. In which of the following crystals alternate tetrahedral voids are occupied?

a) NaCl b) Zns c) CaF_2 d) Na_2O

69. Which of the following is incorrect?

a) Relative lowering of vapour pressure is independent
b) Vapour pressure of a solution is lower than the vapour pressure of the solvent
c) The vapour pressure is a colligative property
d) The relative lowering of vapour pressure is directly proportional to the mole fraction solute

70. On a humid day in summer, the mole fraction of gaseous a H_2O (water vapour) in the air at 25°C can be as high as 0.0287. Assuming a total pressure of 0.977 atm. What is the partial pressure of dry air?

a) 94.9 atm b) 0.949 atm
c) 949 atm d) 0.648 atm

71. Corrosion of iron is essentially an electrochemical phenomenon where the cell reactions are

a) Fe is oxidised to Fe^{2+} and dissolved oxugen in water is reduced to OH^-

b) Fe is oxidised to Fe^{3+} and H_2O is reduced to O_2^{2-}

c) Fe is oxidised to Fe^{2+} and H_2O is reduced to O_2^-

d) Fe is oxidised to Fe^{2+} and H_2O is reduced to O_2

72. A first order reaction is 20% complete in 10 min. What is the rate constant of the reaction?

a) 0.223 b) 0.0223 c) 0.322 d) 0.0322

73. The following mechanism has been proposed for the reaction of NO with Br_2 to form NOBr

$NO(g) + Br_2(g) \rightleftharpoons NOBr_2(g)$

$NOBr_2(g) + NO(g) \rightarrow 2NOBr(g)$

If the second step is the rate determining step, the order of the reaction with respect to NO(g) is

a) 1 b) 0 c) 3 d) 2

74. The fresh precipitate can be transformed in colloidal state by

a) Peptization b) Coagulation

c) Diffusion d) None of these

75. Which one is an ore of sodium?

a) Sylvine b) Siderite

c) Spodumene d) Soda ash

76. Titanium containing mineral found in our country is

a) Bauxite b) Chalcopyrites

c) Elmanite d) dolomite

77. Which one of the following configuration represents a noble gas?

a) $1s^2, 2s^2\ 2p^6, 3s^2$

b) $1s^2, 2s^2\ 2p^6, 3s^1$

c) $1s^2, 2s^2\ 2p^6$

d) $1s^2, 2s^2 2p^6, 3s^2\ 3p^6, 4s^2$

78. $K_2Cr_2O_7 \xrightarrow{\Delta} K_2CrO_4 + O_2 + X$. In the above reaction X is

a) CrO_3 b) Cr_2O_7 c) Cr_2O_3 d) CrO_5

79. Which of the following is correct?

a) Duralumin : Al + Cu + Mg + Ag

b) German silver: Cu + Zn + C

c) Gun metal: Cu + Zn + Sn

d) Solder : Pb + Al

80. Mixture $X = 0.02$ mole of $[Co(NH_3)_5SO_4]Br$ and 0.02 mole of $[Co(NH_3)_5Br]SO_4$ was prepared in 2 L of solution

1 L of mixture X + excess $AgNO_3 \longrightarrow Y$
1 L of mixture X + excess $BaCl_2 \longrightarrow Z$
Number of moles of Y and Z are

a) 0.01, 0.01
b) 0.01,0.02
c) 0.02, 0.01
d) 0.02, 0.02

81. Identify A and B in the following reactions

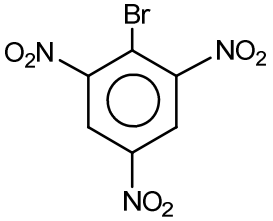
$$A \xrightarrow[\Delta]{\text{Aq.NaOH}} C_2H_5OH \xleftarrow{AgOH} B$$

a) $A = C_2H_2, B = C_2H_6$
b) $A = C_2H_5Cl, B = C_2H_4$
c) $A = C_2H_4, B = C_2H_5Cl$
d) $A = C_2H_5Cl, B = C_2H_5Cl$

82. Etherates are

a) Ethers
b) Solution in ether
c) Complexes of ethers with Lewis acid
d) Complexes of ethers with Lewis base

83. Which of the following will not react with NaOH?

a) 

b) C_2H_5OH
c) CH_3CONH_2
d) $CH(CN)_3$

84. Urea on slow heating gives

a) $NH_2CONHNO_2$
b) $NH_2CONHCONH_2$
c) HCNO
d) $NH_2CONH_2.HNO_3$

85. *n*-butylamine (I), diethylamine (II) and N, N-dimethylethylamine (III) have the same molar mass. The increasing order of their boiling point is

a) III < II < I
b) I < II < III
c) II < III < I
d) II < I < III

86. An organic amino compound reacts with aqueous nitrous acid at low temperature to produce an oily nitrosoamine. The compound is

a) CH_3NH_2
b) $CH_3CH_2NH_2$
c) $CH_3CH_2NHCH_2CH_3$
d) $(CH_3CH_2)_3N$

87. Hexoses and pentoses are

a) Disaccharides
b) Monosaccharides
c) Polysaccharides
d) Oligosaccharides

88. Buna –N is a polymer of

a) Butadiene and isoprene
b) Butadiene and acrylonitrile
c) Isoprene and ethylene diamine
d) Isoprene and butyl diamine

89. The intermediate never form during chain growth polymerization is

a) 

b) 

c) 

d) 

90. Aspirin is
a) Acetylsalicylic acid
b) 2-methyoxybenzoic acid
c) Acetyloxalic acid
d) Methylbenzoic acid